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UNITED STATES DEPARTMENT OF AGRICULTURE,
BUREAU OF PLANT INDUSTRY,
OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION.

NO. 84.

BULLETIN OF FOREIGN PLANT INTRODUCTIONS.

February 16, 1913, to March 15, 1913.

NEW PLANT IMMIGRANTS.

(NOTE: Applications for material listed in this bulletin may be made at any time to this Office. As they are received they are filed, and when the material is ready for the use of experimenters it is sent to those on the list of applicants who can show that they are prepared to care for it, as well as to others selected because of their special fitness to experiment with the particular plants imported.

One of the main objects of the Office of Foreign Seed and Plant Introduction is to secure material for plant experimenters, and it will undertake as far as possible to fill any specific requests for foreign seeds or plants from plant breeders and others interested.)

GENERA REPRESENTED IN THIS NUMBER.

Alysicarpus	34931-933	Harpephyllum	34943
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PLATE: Amygdalus davidiana at Ames, Iowa.

ALYSICARPUS SPP. (Fabaceae.) 34931-933. Seeds from Poona, India. Presented by Mr. W. Burns, Economic Botanist, through Mr. C. V. Piper, of this Bureau. Three species of legumes, related species of which are considered among the best Indian grazing plants. For distribution later.

AMYGDALUS PERSICA NECTARINA. (Amygdalaceae.) 34997. Seeds of a nectarine from Santiago, Chile. Procured by Mr. W. F. Wight, of this Bureau. "Yellow-fleshed nectarines which are very common in the Santiago markets." (Wight.) For distribution later.

BOMAREA SP. (Amaryllidaceae.) 34979. Seeds from San Jose, Costa Rica. Presented by Mr. Ad. Tonduz, Botanist, National Museum. "Fruits found in the vicinity of San Jose. An ornamental with edible tubers." (Tonduz.) For distribution later.

BORASSUS FLABELLIFER. (Phoenicaceae.) 35040. Seeds of the Palmyra palm from Madras, India. Presented by Mr. H. E. Houghton, Superintendent, Agri-Horticultural Society through Mr. Jose de Olivares, American Consul. "An erect palm, 60 to 70 feet high, with a stout trunk and fan-shaped leaves, indigenous to the dry region of Ceylon, India and Africa. It is naturally suited to a rather dry climate; is extensively cultivated for the fruit and leaves. The large black fruits are borne in a cluster at the base of the leaves; the nut contains a refreshing sap, much relished as a cooling drink; the kernels or young seeds are much used as an article of food, being sold in large quantities in the bazaars during the months of April and May; the sap obtained from the flower spathes is collected in large quantities and either fermented and made into 'toddy' or 'arrack' (an intoxicating drink), or boiled down for making sugar or jaggery. The leaf blades are used for making fans, baskets, buckets, etc.; while the leaf-stalks and mid-ribs furnish an excellent brush-fibre, which forms an article of export. To obtain the latter the trees are stripped of all but three leaves once in two years. The trunk yields a hard and most durable timber and the husks are in demand for fuel. Among palms in the East the Palmyra ranks next in importance to the coconut, and the acreage under its cultivation in Ceylon is estimated at approximately 40,000 acres, while that in Tinnevelly is said to be about 60,000 acres. It is propagated from seed, which is sown in situ in holes made in sandy soil. In about ten years from sowing, the palms should be in flower, when they may be used for drawing toddy and making sugar.

When grown for fruit an average return of about 3500 nuts per acre may be obtained." (Macmillan, Handbook of Tropical gardening.) For distribution later.

CALYPTRANTHES TONDUZII. (Myrtaceae.) 34980. Seeds from San Jose, Costa Rica. Presented by Mr. Ad. Tonduz, Botanist, National Museum. "A myrtaceous fruit called Guayabillo, which yields a hard fine wood. These trees scattered throughout the praderas (country covered with meadows) are literally covered with the yellow edible fruits." (Tonduz.) For distribution later.

CARAGANA DECORTICANS. (Fabaceae.) 34989. Seeds from the Royal Botanic Gardens, Kew, England. Presented by the Director, Dr. David Prain. An Afghan shrub or small tree discovered by Dr. Aitchison in the Kurrum Valley. The bark is said to be "employed by the Afghans in the form of rings to slip over and hold the sheaths of their long knives in position in lieu of brasswork; the surface takes a good polish, and when new resembles bronzed leather." (Aitchison.) For distribution later.

CYMBOPETALUM PENDULIFLORUM. (Annonaceae.) 35039. Seeds of the ear flower from Guatemala City, Guatemala. Presented by Mr. George A. Bucklin, American Consul General. A very interesting annonaceous plant, the flowers of which when dried were used by the Aztecs to flavor their chocolate and the idenity of which has but recently been discovered by Mr. W. E. Safford of this Bureau. For full account see Smithsonian Annual Report, 1910, p. 427-431. For distribution later.

CYPHOMANDRA BETACEA. (Solanaceae.) 34974. Seeds of the tree tomato from Buenos Aires, Argentina. Presented by Mr. Carlos Thays, Director, Jardin Botanico. "An evergreen semi-woody shrub, native of Peru. The egg-shaped and smooth-skinned fruit, produced in great abundance and in hanging clusters at the ends of the branches, is in season almost throughout the year, but chiefly from March to May (in Ceylon). At first greenish purple, it changes in ripening to reddish yellow. Some varieties are of a deep-purple color. The sub-acid succulent fruits are refreshing and agreeable when eaten raw, but their chief use is for stewing; they may also be made into jam or a preserve. The tree is a quick grower, and commences to bear fruit when two or three years old, remaining productive for several years." (Macmillan, Handbook of Tropical Gardening.) Mr. L. H. Bailey found that this shrub would bear the

second or third year from seed when grown under glass, in Michigan, and the experiment is worth repeating. (Fairchild.) For distribution later.

DIOSPYROS KAKI. (Diospyraceae.) 34973. Cuttings of persimmon from Hiroshima, Japan. Presented by Rev. H. Loomis, American Bible Society, Yokohama. "Giombo. This is the variety that produces the best dried persimmons in Japan." (Loomis.) For distribution later.

HARPEPHYLLUM CAFFRUM. (Anacardiaceae.) 34943. Seeds from Cape Town. Presented by the Chief Conservator of Forests. "One of the prettiest evergreen shade trees to be seen in the gardens of Cape Town. Suitable for very windy situations and forms a very dense shade. The timber is said to resemble mahogany and is used for wagon making. The red showy drupes have a pleasant acid taste, but little pulp, and are suitable for making preserves. The tree will stand some drought and is suitable for frost-free regions. Has done well in California, and particularly well in South Florida, where trees introduced in 1902 are now 20 feet high. (Fairchild.) For distribution later.

KERSTINGIELLA GEOCARPA. (Fabaceae.) 34916-919. Seeds of the kandela from Togoland, Africa. Presented by Dr. A. Engler, Director, Botanic Garden, Dahlem, Germany. "Three years ago Professor H. Harms described a new genus of Leguminosae which he called Kerstingiella after its discoverer, Dr. Kersting of Sokode, Togoland. Apart from the strictly botanical interest attaching to it, it was remarkable as the source of a ground bean or nut which had been until then unnoticed, although its cultivation in Upper Guinea as we now know extends over a fairly large area. In 1910 Dr. A. Chevalier recorded the same plant from Dahomey, describing it as a new species of Voandzeia under the name V. poissonii. Since then it has been in cultivation and under observation in the Botanic Gardens at Dahlem and Jena, and last year Professor Harms published a short article in which he summarized briefly what was then known about this ground bean, adding some valuable information concerning the conditions of its cultivation.

"Chevalier states that Hausa traders assured him of the existence of the bean in British Nigeria. This statement is confirmed by specimens of Kerstingiella communicated to Kew by Mr. W. R. Elliot, who came across it as a field crop in Nupe. The plant is undoubtedly of some economic importance and it seems desirable to call the attention of British residents and travelers in Nigeria to the occurence

with a description of the plant and some observations of its morphological and biological peculiarities mainly quoted from the same author's earlier paper together with a list of vernacular names.

"'Two years ago I called attention to an important botanical discovery by Dr. Kersting, who, in the northern territory of Sokode-Bassari, Togoland, came across an especially interesting new kind of bean which matured its pods below, instead of above ground. The well-known ground nut (Arachis hypogaea), and the peanut (Voandzeia subterranea), are similar instances. Kersting found that the natives of Togoland cultivated the bean, which they called Kandela in three varieties distinguished by their colors. I described this bean which is not known in the wild state, as Kerstingiella geocarpa, the type of a new genus of Leguminosae.

"'In July, 1910, Aug. Chevalier, the indefatigable African explorer, reported the existence in Dahomey of a plant which, to judge from the description, was very similar to, if not identical with, Kersting's bean. He named it Voandzeia poissoni, a new species of the genus of the peanut, giving the Dahomey name as 'Doi'. the beans are sold in the market of Abomey by the natives, who grow them largely. There were also here color varieties (white, black, or red and mottled). An account may be found in Quinzaine Coloniale, 1910, No. 16, p. 590. Chevalier's description suggested at once the identity of the Dahomey and the Togo bean. M. Chevalier was, on his return from Africa, good enough to send me a specimen of his Dahomey plant whilst I supplied him with material from Togoland and our comparisons proved that the two beans were actually identical, or in other words that the Togo bean extended into Dahomey and M. Chevalier has already stated (Compt. Rend. 1910, p. 1374) that he too considers his species as identical with Kerstingiella geocarpa. He gives an important account of its distribution in Dahomey, quoting various vernacular names. The species is also said to occur in British Nigeria, but up to the present I have seen no specimen from there. In Togo as well as in Dahomey the plant is known only in the cultivated state, which renders Kersting's and Chevalier's discoveries the more remarkable.

"'Chevalier gives analyses (l.c. p. 1375) which show that the nutritious value of the beans is very considerable. They are said to equal the richest peanuts in nitrogenous matter, whilst they have at the same time a more pleasant taste, particularly for Europeans, recalling that of the finest varieties of beans. The yield, owing to the smallness of the seeds (8-10 mm. by 6-7 mm.), is not large.

In Dahomey according to the French explorer, the women are forbidden to eat the beans.

"'Last year (1910), thanks to the kindness of First Lieutenant Häring of Sokodé-Bassari (Togo), the Botanic Garden at Dahlem near Berlin received excellent seeds of this remarkable fruit. They germinated well and numerous plants were raised by Chief-Inspector F. Ledien, not a few of them flowering in July and August. A number of seeds were sent to Inspector E. Rettig of the Botanic Garden at Jena, and under his careful and intelligent treatment, splendid specimens grew up of which some even set fruit. The unfavorable and cold summer of 1910, however, prevented their maturation. The flowers are very small and papilionaceous and spring from the creeping stem close to the ground. The flowers of the variety with light or occasionally black-mottled seeds are white, those of the other varieties pale violet.

"'It is desirable to follow up the distribution of this cultivation, particularly among the natives in Togo, where it may also be found in the wild state. Similarly Voandzeia subterranea, so generally cultivated in Togo, has never been observed in the spontaneous condition. It is also possible that Kerstingiella occurs in the Hinterland of the Camaroons (Adamaua, Zola, Gerau, etc.). Chevalier states that the Hausa traders contended that it existed in British Nigeria and the probability that the Hausa people were instrumental in the spreading of the cultivation is obvious. The Hausas call it Kouarouroi according to Chevalier. It is also said to occur in Borgu. It is true, at the first glance it might be mistaken for Voandzeia subterranea and Schweinfurth actually suggests that this has been the case with certain writers (Zeitschrift d. Gesellschaft f. Erdkunde, 1910), but the expert will always distinguish them. Habit and leaves are similar and yet distinct, and Voandzeia, so long and so well known to us, has above all much larger globose seeds.

"'In any case, I should be very grateful for any communications concerning Kerstingiella or Voandzeia, their cultivation and use, and particularly if they are accompanied by flowers, fruits, and seeds. Material of this kind would enable us to establish the distribution of the plant. Kerstingiella might possibly also be grown with advantage in other parts of our colonies. Moist and hot countries do not suit it; in Togo it occurs according to Kersting in sandy laterite loam, in a climate of low humidity with occasional heavy showers and a shade temperature of 18°-34°C.'"

"As the resemblance between Kerstingiella and Voandzeia

subterranea (at least in its broad-leaved states), is considerable and the two have actually been confused, it may be useful to point out the following differences:

Kerstingiella geocarpa.	Voandzeia subterranea.
Flowers subsessile in the axils of the leaves, paired or solitary without a distinct common peduncle.	Flowers usually in pairs on a common, more or less hairy, peduncle terminating with a callous swelling.
Calyx deeply divided, with narrow, linear, subequal segments.	Calyx with short, broad and uneven teeth.
Style glabrous.	Style hairy on the inner side upwards.
Stigma terminal, capitate.	Stigma lateral, below the pointed apex of the style.
Stipes of pistil lengthening considerably after fertilization.	Pistil without a stipes.
Seeds oblong - ellipsoid, 6-7 mm. by 5 mm.	Seeds globose-ellipsoid. 1-1.5 cm. by 0.9-1.05 cm.

"The mechanism by which the pods of Kerstingiella become buried in the ground is very singular and almost unique in Leguminosae. When the flowers, which seem to be chasmogamous, are fully developed, they are close to the ground. After fertilization the solid base or stipes of the pistil, which in the flower is very short, lengthens into a carpopodium and at the same time turns towards the ground; then the corolla and the style are thrown off. The ovary, still very small, is pushed out of the calyx, and by the root-like carpopodium gradually driven into the ground, where finally the growth and the maturation of the ovary into the seed-bearing pod takes place." (From the Bulletin of Miscellaneous Information, No. 5, 1912, of the Royal Botanic Gardens, Kew, England.) For distribution later.

LICANIA PLATYPUS. (Rosaceae.) 34915. Seeds of the sonzapote from San José, Costa Rica. Presented by the Department of Agriculture. "It grows in the form of a tree, rather scarce on the Pacific coast of Costa Rica, but more common in other parts of Central America, where it is

sometimes known as Sunza. The fruit is large, somewhat oblong with a reddish-gray skin; the flesh yellowish, fibrous and rather sweet, enclosing an oval depressed seed." (W. E. Safford.) For distribution later.

OCHNA PULCHRA. (Ochnaceae.) 34942. Seeds from South Africa. Presented by Mr. J. Burtt-Davy, Government Agrostologist and Botanist, Pretoria, Transvaal, Union of South Africa. An ornamental shrub or small tree with pendulous racemes of orange-red berries, found in the vicinity of Johannesburg, Transvaal. The seeds yield oil. For frostless regions. For distribution later.

PERSEA AMERICANA. (Lauraceae.) 34994. Seeds of avocado from Valparaiso, Chile. Procured by Mr. W. F. Wight, of this Bureau. "Palta. The fruits from which these seeds were taken are sold in Valparaiso. They are purple-skinned, rather small and of very fair quality." (Wight.) For distribution later.

SOLANUM SPP. (Solanaceae.) 35023-028. Seeds and tubers of potatoes from various parts of Chile. Procured by Mr. W. F. Wight, of this Bureau. Various varieties obtained by Mr. Wight in his investigations of the potato in its original habitat. For distribution later.

SOLANUM COMMERSONI. (Solanaceae.) 34921-922. Tubers of a potato from the Colonial Museum, Marseille, France. Presented by the Director, Dr. E. Heckel.

XIMENIA CAFFRA. (Olacaceae.) 35043. Fruits from South Africa. Presented by Mr. J. Burtt-Davy, Government Agrostologist and Botanist, Pretoria, Union of South Africa. "Zuur pruin. An edible fruit useful for jellies. It grows in semi-arid, sub-tropical localities, such as the Transvaal bush-veld." (Burtt-Davy.) For distribution later.

UNDETERMINED. Roots from Angola, West Africa. Presented by Mr. Merlin W. Ennis, Boston, Mass. "Olanamba. The wild ones are found on stony mountain slopes where the soil is sandy. This cultivated root seems to thrive on any soil and will bear well on soil too poor and sandy for potatoes. The natives eat these roots raw. We bake them, use them in soup, etc." (Ennis.) For distribution later.

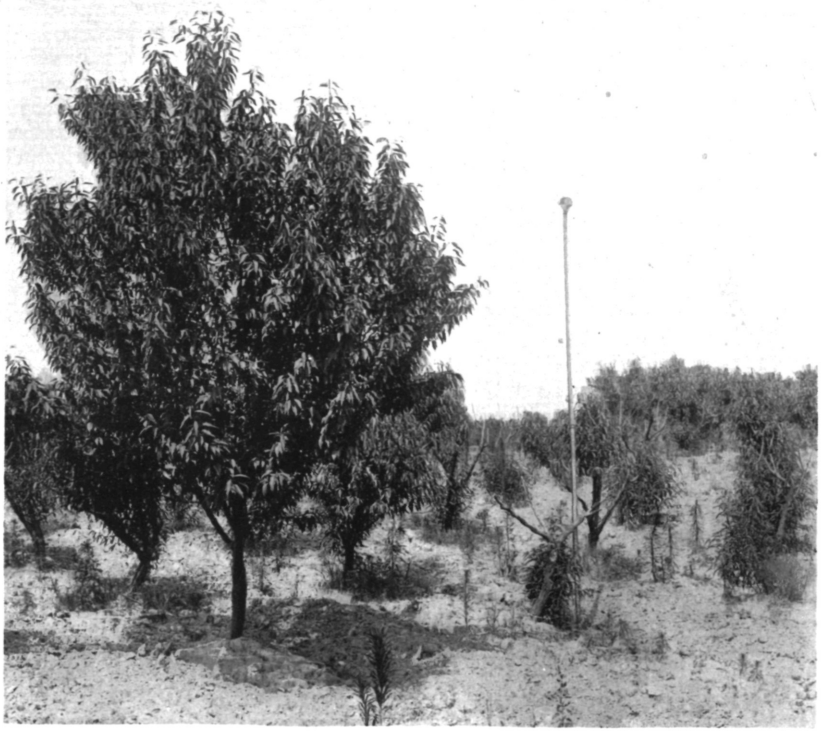
NOTES FROM CORRESPONDENTS ABROAD.

Mr. Frank N. Meyer, Agricultural Explorer writes from Harbin, Manchuria, Feb. 25, 1913: "The last long report I

wrote you was from Chita. I paid visits to Mr. P. M. Tolmatchoff, acting director of the local museum and arranged with him to see the botanical collections the next day. Then I hunted up a Mr. A. M. Suvari who is the Governmental Agronomist for the Chita district. This last gentleman speaks German very well and we spoke about a good many topics. The Russian Government is going to establish an experimental station near Petrofski Savod to the west of Chita, as the soil immediately around this last town is too sandy to be of any use for agriculture. Mr. Suvari himself does not know very much as yet about local Eastern Siberian conditions as his field for many years was the Steppe-territory of S. W. Siberia which he knows very well. He told me that way off of the beaten tracks one finds that in old Kirghiz settlements varieties of grains are being cultivated, like wheats, barley and millets which are quite different from any sorts he ever saw. Especially in the dry Karakalinsk district one finds them. This is to the S. W. of Semipalatinsk. Mr. Suvari also told me that the Government has intended to experiment with local wild grasses but they find it almost impossible to obtain seeds enough to work with, native people being too indolent and too dull; Mr. Suvari had offered as much as ten roubles for a tumbler full of wild lucerne-seed and not even a thimble full had been brought in. I asked about this Amur wild rice, Zizania latifolia, but Mr. Suvari did not quite know it; we have written now to the Agricultural Society at Blagowestchensk, where this grass occurs. I also went to the Office of the International Harvester Company and heard that agriculture is slowly spreading over the whole of Siberia and that more and more machines are sold every year. To obtain however, native grasses and forage plants is a thing one would have to go after himself in that short season, called late summer, which is very short indeed in Siberia.

"I saw Mr. Suvari also again, he had promised me some samples of a good rye, that grows some distance away from Chita. He had not been able to obtain it but he will send it to you at Washington. Mr. Suvari likes to obtain from us names of firms dealing in grains and forage plants from the most northern parts of America. I suggest to open up correspondence with him, especially when the Agri. Exept. Station there near Petrofski Savod will be established, as he may supply us with seeds of local fodder grasses.

"The next day I left Chita, which possesses a fine, sunny, dry winter climate, and we took our tickets to Harbin, or rather to the Sta. Manchuria, as for some reason or other they would not sell us thro' tickets, apparently in connection with delays at the Manchurian frontier. And we were delayed for many many hours, but on Friday, Feb. 21, we arrived here in this town."



AMYGDALUS DAVIDIANA. Chinese Wild Peach.

A six-year old tree of the red barked, upright strain of Chinese wild peach standing in the midst of a winter killed orchard of ordinary peaches at Ames, Iowa. This tree grown from seed of a tree now growing at Pekin (S.P.I. No. 18262) began to show unusual hardiness in 1910 and in 1911, following an unusually dry summer and stood uninjured a January temperature of -35° F., which killed the hardiest varieties of peach, such as Hills Chihli, to the ground. In Texas and southern California it has shown an unusual resistance to drouth and a remarkable earliness as a stock. It flowers very early and its buds are killed by the frost in Iowa, so that it has not fruited there. It is not an edible peach but a stock plant for stone fruits.

(Issued: May 19, 1913.)